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## BOOK REVIEWS AND NOTICES

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*Civilization and Climate.* By ELLSWORTH HUNTINGTON. New Haven: Yale University Press, 1915. 8vo, xii+333. \$2.50.

As the author states in his preface, this volume is a product of the new science of geography. He might have gone farther, however, and labeled it a product of the most advanced aspect of modern geography, for the book is an attempt to establish climatic laws of control over many important aspects of human life.

For a number of years the author has been among the most prominent contributors to the literature on climatic changes and related topics. Some of the more important of these contributions are represented by "The Pulse of Asia," "Palestine and Its Transformation," and "The Climatic Factor as Illustrated in Arid America." The present volume may be regarded as the culmination of these earlier contributions, which have been spread over the interval from 1905 to date. Its central thesis is that climatic conditions and changes of climate in historic periods have been very important, perhaps the most important of all, factors influencing the development of civilization, as measured by the sum total of man's progress in different parts of the world. It is not quite up to the literary merit of some of the earlier books, probably because the subject offers little chance for the display of the author's gift for descriptive narrative.

The general trend of the discussion is indicated by such chapter headings as "Race or Place," "The White Man in the Tropics," "The Effect of the Seasons," "The Effect of Humidity and Temperature," "Work and Weather," "The Ideal Climate," "The Distribution of Civilization," "The Shifting of Climatic Zones," "The Shifting Centers of Civilization," and "The Climatic Hypothesis of Civilization." In the last-named chapter, which summarizes the author's whole thesis, the main items are the contention that a particular kind of climate is necessary for the development of a high type of civilization, and that the present distribution of civilization over the surface of the earth coincides with the distribution of climatic conditions which give rise to much energy.

While the author admits that there may be various objections to these major contentions, he nevertheless seems thoroughly convinced

that supporting evidence is sufficiently abundant and strong to justify accepting the points as the basis of a working theory. The stoutest objector, however, must agree that there are, in the dozen chapters preceding the final conclusions, a great many facts which suggest the deductions which the author has made, and that the material gathered from so widely scattered sources and marshaled effectively lends rather more than an air of plausibility to his statements. On the other hand, it is difficult to follow the author in some instances, both through his discussion of data and to the conclusions which he draws from them. Moreover, in the drawing of graphs, to present conveniently a large body of statistical data of different sorts, a process of smoothing the curves has been followed in a good many cases; by this process various details are removed, and, if carried far enough, it would produce straight lines. Although this method can be defended, there are some places where the coincidence of curves apparently would be slight if the details of variation were left in, but from the coincidence of smooth curves important conclusions are drawn. That is to say, the process of smoothing may well appeal to the reader as the means by which the data are made to fit the theory, and may leave him, not only uncertain about accepting the conclusions without qualification, but also regretting that the data were not presented with all their minor variations in order that he then could form for himself some notion as to the kind and degree of tentative qualification necessary.

In the main the book is sure to prove suggestive and interesting, whether the reader agrees with it or not. For most readers, probably, the chief interest will center on the discussion in chapters viii, ix, and x, wherein the distribution of civilization, vitality, and education in the United States, and the world-conditions of civilization, are reduced to charts, with relative degrees of desirability, of advancement, and of development indicated by appropriate symbols. This part of the work, it is interesting to note, represents, not simply the author's notions as to how various parts of the world compare in the scale of development of human ability, but a combination of results from his own study and opinions from many other investigators—geographers, historians, economists, and so on, scattered the world over—whose assistance was enlisted in an attempt to group and to grade important world-regions with respect to their human development. Thus one finds (p. 180, Fig. 31) the distribution of civilization indicated as of five orders: very high, high, medium, low, and very low. Accompanying it (Fig. 30) is the distribution of human energy as determined by climatic conditions, with

the same five degrees of differentiation. From these charts the conclusion is to be drawn that human energy, dependent on climate, is a large, if not the determining, factor in the distribution of civilization. Similar charts are presented for the distribution of literacy in the United States.

Such items of course are of much interest, not only to the geographer, but also to those who are working in historical and social sciences; for if Huntington's contentions are to be adopted without qualification, it is obvious that they have a very great bearing on the study of history, and more than that perhaps on the present-day social and economic problems of all parts of the world. To take a specific instance: if Huntington is right, it now becomes more or less practicable to specify the conditions of climate under which a given set of operations, like manufacturing processes, will be most satisfactorily carried out, and to prejudge, therefore, the relative merits of this or that section of the world for complex industrial progress. For example, the application of Huntington's ideas (chapter on "Work and Weather") would lead to the conclusion that all humid tropical areas are naturally and permanently unsuited for efficient manufacturing enterprises; that education and social conditions in general (chapter on "Vitality and Education in the United States") must permanently be less satisfactory in low latitudes than in intermediate zones. In short, by further development of the theory it would be possible definitely to set a relative value on almost every part of the world, so far as the climate of the area would determine the possibility of human advancement. Obviously, therefore, it is a book which every geographer, historian, economist, or any other interested in human progress should read.

The scientific world unquestionably is indebted to the author for the amount of material which he has gathered and presented in usable form and for the effective fashion in which he has summarized the present status of our knowledge concerning the dependence of man on the climatic elements in his environment. Probably most of his readers, after they finish the volume, will feel that a great many qualifications must be added to the main conclusions and that the problem of proving the "climatic hypothesis of civilization" is extremely difficult, involving very elaborate studies of different human groups prosecuted over long intervals of time. For that reason the conservative position at present is to regard the theory as a very interesting one, which may sometime be satisfactorily substantiated, but which is not now in a form to receive general acceptance.

WALTER S. TOWER